

CLAIMS

Having described the invention, I claim:

1. Suspension apparatus for a rear wheel of a wheelchair comprising
 - 2 a mounting member mounted to a frame member of the wheelchair,
 - 3 an elongate fork member hingedly mounted to the mounting member,
 - 4 the fork member including a hinge end and a free end,
 - 5 a rear wheel axle receiving opening at the free end of the fork member,
 - 6 a shock absorber disposed between the fork and the mounting member,
 - 7 the shock absorber damping vertical movement of the fork.
- 1 2. The suspension apparatus of claim 1 wherein
 - 2 the shock absorber is entirely polymeric.
- 1 3. The suspension apparatus of claim 1 wherein
 - 2 the mounting member is detachably mountable to the frame member of the wheelchair.
- 1 4. The suspension apparatus of claim 1 wherein
 - 2 the mounting member comprises a base member and an enclosing member,
 - 3 the enclosing member attachable to the base member,
 - 4 the base member and the enclosing member cooperative to surround a length of the frame
 - 5 member of the wheelchair.
- 1 5. The suspension apparatus of claim 1 wherein
 - 2 the shock absorber comprises an elongate cylinder of solid polymeric material.
- 1 6. The suspension apparatus of claim 1 wherein
 - 2 the shock absorber comprises an upper end and a lower end,
 - 3 the fork member including a seat for receiving the lower end of the shock absorber,
 - 4 the base member having a receiver for receiving the upper end of the shock absorber.
- 1 7. The suspension apparatus of claim 1 wherein
 - 2 pivot limiting means is provided for restricting movement of the free end of the fork

3 member.

1 8. The suspension apparatus of claim 1 wherein

2 a first surface on the fork member abuts a first surface on the mounting member when the
3 shock absorber is fully decompressed.

1 9. The suspension apparatus of claim 5 wherein

2 the mounting member is detachably mountable to a horizontal frame member of the
3 wheelchair,

4 the elongate fork member hingedly mounted to the mounting member at a first end thereof,
5 the mounting member comprising a base member and an upper member,

6 the upper member attachable to the base member,

7 the base member and the upper member cooperative to surround a length of the horizontal
8 frame member of the wheelchair,

9 the shock absorber comprising an upper end and a lower end,

10 the fork member including a seat for receiving the lower end of the shock absorber,

11 the base member having a receiver for receiving the upper end of the shock absorber,

12 a first surface on the fork member abuts a first surface on the mounting member when the
13 shock absorber is fully decompressed.

1 10. The suspension apparatus of claim 9 wherein

2 a second surface is disposed on the fork member which abuts a second surface on the
3 mounting member to limit longitudinal compression of the shock absorber.

1 11. The suspension apparatus of claim 5 wherein

2 the fork member includes a pair of parallel tines joined at lower edges thereof by a transverse
3 wall,

4 each tine of the fork member having a pivot end and a free end,

5 the free end of each tine including a rear wheel axle opening for receiving an axle of the rear
6 wheel of the wheelchair,

7 the pivot end of each tine including a pivot pin opening,
8 the mounting member comprising a base and an upper clamp,
9 the base comprises a first end and an opposed second end,
10 a pivot pin horizontally disposed on the base below the first end thereof,
11 the base including a vertically disposed hollow mounted therebelow, the hollow spaced away
12 from the first end of the base,
13 the shock absorber having upper and lower ends,
14 the upper end of the shock absorber received in the hollow of the base member,
15 the lower end of the shock absorber received in a seat on the transverse wall of the fork
16 member,
17 the seat comprising a recess sized to receive the lower end of the shock absorber,
18 each tine having first and second stop faces,
19 the base member having adjoining first and second abutment faces adjacent opposing ends of
20 the pivot pin,
21 the first faces of each tine abuttable with the first faces of the base,
22 the second faces of each tine abuttable with the second faces of the base,
23 the first face of each tine joined to the second face thereof at an obtuse angle,
24 each first face of the base joined to one of the second faces of the base at an obtuse angle,
25 the angle between the first face on each tine and the second face thereof greater than the angle
26 between each first face and each second face of the base.

1 12. Suspension apparatus for a rear wheel of a wheelchair comprising

2 a mounting member mounted to a horizontal frame member of the wheelchair,
3 an elongate fork member hingedly mounted to the mounting member at a first end thereof,
4 the fork member including a hinge end and a free end,
5 an axle receiving opening at the free end of the fork member,
6 an elongate cylinder of solid polymeric material disposed between the fork and the

7 mounting member,

8 a first surface on the fork member abuttable with a first surface on the mounting member,

9 whereby abutment of the first surface of the fork member on the first surface of the

10 mounting member limits movement of the free end of the fork member away from

11 the mounting member.

1 13. A wheelchair having a frame, a pair of relatively large rear wheels journaled to the frame, and
2 a user seat disposed between the rear wheels, the invention comprising
3 a shock absorbing suspension interposed between each rear wheel and the wheelchair
4 frame,
5 each suspension comprising:
6 a mounting member mounted to a generally horizontal member of the wheelchair frame,
7 an elongate fork member hingedly mounted to the mounting member at a first end thereof,
8 the fork member including a hinge end and a free end,
9 the fork member comprising an axle receiving opening at the free end thereof,
10 a shock absorber disposed between the fork and the mounting member,
11 an axle of one rear wheel disposed in the axle receiving opening of the fork member of each
12 suspension.

1 14. The wheelchair of claim 13 wherein
2 the shock absorber comprises an elongate cylinder of solid polymeric material.

1 15. The wheelchair of claim 14 wherein
2 the mounting member of each suspension is detachably mounted to the frame member of
3 the wheelchair,
4 the mounting member comprises a base member and an enclosing member,
5 the enclosing member attachable to the base member,
6 the base member and the enclosing member cooperative to surround a length of the
7 horizontal frame member of the wheelchair.

- 1 16. The wheelchair of claim 15 wherein
2 the shock absorber comprises an upper end and a lower end,
3 the fork member including a recess for receiving the lower end of the shock absorber,
4 the base member having a receiver for receiving the upper end of the shock absorber.
- 1 17. The wheelchair of claim 16 wherein
2 pivot limiting means is provided for restricting movement of the free end of the fork
3 member.
- 1 18. The wheelchair of claim 16 wherein
2 the fork member of each suspension includes a first surface which abuts a first surface on
3 the mounting member when the shock absorber is fully decompressed.
- 1 19. The wheelchair of claim 18 wherein
2 a second surface is disposed on the fork member which abuts a second surface on the
3 mounting member to limit longitudinal compression of the shock absorber.
- 1 20. The wheelchair of claim 13 wherein
2 the fork member of each suspension includes a pair of parallel tines joined at lower edges
3 thereof by a transverse wall,
4 each tine of the fork member having a pivot end and a free end,
5 the free end of each tine including a rear wheel axle opening for receiving an axle of one rear
6 wheel of the wheelchair,
7 the pivot end of each tine including a pivot pin opening,
8 the mounting member of each suspension comprises a base and an upper clamp,
9 the base comprises a first end and an opposed second end,
10 a pivot pin horizontally disposed on the base below the first end thereof,
11 the base of each suspension including a vertically disposed hollow mounted therebelow, the
12 hollow spaced away from the first end of the base,
13 the shock absorber of each suspension having an upper end and a lower end,

14 the upper end of the shock absorber received in the hollow of the base member,
15 the lower end of the shock absorber received in a recess in the transverse wall of the fork
16 member,
17 the recess sized to receive the lower end of the shock absorber,
18 each tine having first and second stop faces,
19 the base member having adjoining first and second abutment faces adjacent opposing ends of
20 the pivot pin,
21 the first faces of each tine abuttable with the first faces of the base,
22 the second faces of each tine abuttable with the second faces of the base,
23 the first face of each tine joined to the second face thereof at an obtuse angle,
24 each first face of the base joined to one of the second faces of the base at an obtuse angle,
25 the angle between the first face of each tine and the second face thereof greater than the angle
26 between each first face and each second face of the base.